ORIGINAL ARTICLE

AN INSIGHT INTO THE KNOWLEDGE AND PRACTISES CONCERNING MOSQUITO BORNE DISEASES IN URBAN SLUMS OF OLD HUBLI

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ABSTRACT: BACKGROUND: Mosquito borne diseases is a growing urban problem because of unplanned urbanization, industrialization and excessive population growth coupled with rural to urban migration. In recent years, vector-borne diseases have emerged as a serious public health problem in countries of the South-East Asia Region, including India. For developing a suitable and effective health education strategy, it is inevitable to understand the level of knowledge of the community, their attitude and practices regarding mosquito borne diseases. **OBJECTIVES:** to know the knowledge and practices regarding mosquito borne diseases among people of urban slums of old Hubli. **METHODOLOGY:** A cross-sectional study among a pre-determined sample of 400 households, by stratified systematic random sampling was carried out in the month of June and July. **RESULTS:** out of 400 respondents, 71.8% were females and 28% were males, 32.8% were educated till primary and 58% belonged to lower middle socio-economic status. Awareness regarding malaria, dengue, JE was poor compared to chikungunya (60% aware). Rainy season was rightly quoted as the season for MBD's, 96% didn't knew about breeding places of mosquito and 49.8% were unaware of the mode of transmission. Friends/relatives were the most common source of information. The use of personal protective measures was seen in less than 50% of the respondents and 96.3% of them used only at night. The community measures undertaken in that area to prevent MBD's was minimal and consisted of only insecticide fogging (44%). **CONCLUSION:** A significant number were unaware of MBD's, the natural outbreak of chikungunya provided the much needed information of the disease at the place. Strengthening personal protective and community measures to prevent MBD's is the need of the hour.

KEYWORDS: Mosquito borne diseases, urban slum, old hubli, households.

INTRODUCTION: The vector borne diseases are the group of communicable diseases, caused by mosquitoes and other vectors. A considerable amount of morbidity and mortality caused by mosquito's amounts to a greater disease burden of a country.¹

In recent years, vector-borne diseases (VBD) have emerged as a serious public health problem in countries of the South-East Asia Region, including India. Mosquito borne diseases is a growing urban problem because of unplanned urbanization, industrialization and excessive population growth coupled with rural to urban migration. National Vector Borne Disease Control Programme (NVBDCP) is one of the most comprehensive and multifaceted public health activity including prevention and control of mosquito borne diseases.^{2,3}

Of the list of MBD's, the most important ones being malaria, dengue fever, chikungunya fever and Japanese encephalitis. In India every year there are millions of cases of malaria.

Studies conducted in tropical countries had found that human knowledge, attitude and practice of various methods of personal and household protection against mosquito bites vary in

ORIGINAL ARTICLE

different communities.⁴ The provision of good environmental conditions, along with reduction of potential source of mosquito breeding habitats form the ideal method of mosquito control.⁵

To prevent mosquito bites, varied range of personal protective measures are being recommended, which includes, mosquito nets, repellents, vaporizers and mosquito coils and patches.^{6,7}

In spite of mass communication and educational approaches, community participation is far below expectation. Community participation in turn depends on peoples' awareness, knowledge and attitude towards the disease.⁸ Several socioeconomic studies in different countries indicate variations in knowledge and practice-related to mosquito-borne diseases. However, taking socially acceptable measures by the local government, in collaboration with other relevant sectors and social mobilization for full involvement of the community is crucial.^{9,10}

Thus, owing to upcoming urbanization and the poor quality of living at urban slums, this study was aimed to assess the existing knowledge and practices of the people regarding MBD's, along with various personal protective measures and community measures undertaken in this area of Old Hubli to prevent MBD's. And also to obtain their pre-monsoon preparation to prevent the Catastrophe of any mosquito borne diseases.

MATERIALS AND METHODS: It's a cross-sectional study, done amongst the people residing in the urban slums of Old Hubli. Taking 50% of people in the households as having good knowledge regarding vector borne diseases (p), the sample size was calculated using the formula $Z=4pq/l^2$ (where p=50%, q=100-p and d= allowable error of 10% of p). The calculated sample size came up to 400 and the study period was from May to June 2014.

The Old Hubli area is divided into 4 wards, covering a population of 54,482 and 11766 households in the area. Using stratified Systematic random sampling technique, the sample households were taken from all 4 wards of Old Hubli area, 100 each from 4 wards. First household in the respective ward was chosen randomly and thereafter, Using the sampling interval of 30 (11,766/400) every 30th household was taken up into the study until required 100 houses was met. The selected household was visited, any one person in the household above the age of 18 years, giving consent, was randomly selected and interviewed. If the household was locked or the eligible persons were unavailable, the immediate next house was chosen for the study.

Interview was by the questionnaire, prepared after pilot testing, which included the questions on knowledge, attitude and practices along with other socio-demographic details.

The data was entered in Ms Excel sheet and analyzed using SPSS software version 20.0 and results were interpreted as percentages and tests of proportions like Z-test was applied.

RESULTS: Out of 400 respondents, 71.8% were females and 28.2% were males. Majority of them, 32.8% had primary education followed by secondary 27.5% and illiterates were few 25.5%. Most of them were Muslim by religion 51.7%, followed by Hindu 48%. Taking socio-economic status into consideration, majority of them belong to lower middle class, 58.3% followed by upper middle and upper lower, 17.3% each. (Table no 1)

Television (21.5%) and friends/relatives (23.5%) were the most common source of information regarding mosquito borne diseases, while health workers (19.5%) were third most common. Only half of the participants rightly knew regarding the season of mosquito borne diseases

ORIGINAL ARTICLE

as rainy (53%) followed by 30% respondents who said summer is the season. While 2% of the people didn't know the actual season for mosquito breeding's.

After assessing the living conditions, it was found that, nearly 53.3% of participants had a nuclear family and 67.3% stayed in semi-pucca house. The source of water was chiefly by pipeline 99% and let once a week only 98.3%. Over 77.8% had well closed drains. Many residents prefer private consultation (80%) for their illness than the government set up. (Table no 2)

The awareness regarding malaria (24.5%), dengue (15%) and Japanese encephalitis (2.5%) were considerably low as compared to chikungunya (60%). Over half of people (50.2%), do not know the mode of transmission of these diseases. They were unaware of the breeding places (96%) and resting habitat (42.5%). The most common symptoms and the modality of diagnosis was known to very few of the respondents' i.e 23% and 13% respectively. While, only 8% of the participant were unaware of control measures for mosquito control. The single test of proportion, Z-test showed highly significant knowledge level among the population. (Table no 3)

The practices pertaining to MBD's showed that, majority (84.8%) stored non-drinking water in barrels, which they kept covered (97.3%) and cleaned them once a week (94.3%). 53.3% disposed wastes into dustbin but didn't cover it. The use of mosquito nets, liquid vaporizers and coils/mats were seen in 18%, 46.5% and 53.5% respectively. (Table no 4)

96.3% of them used these personal protective measures only during night hours and the various community measures undertaken in their area to prevent MBD's is very minimal and most frequently used one in insecticide fogging. (Chart no 1 & 2)

DISCUSSION: Out of 400 respondents, 71.8% were females and 28.2% were males. Which is similar to a study by Patel A in Rajkot, Gujarat. This can be attributed to fact that majority of women stayed at home as compared to their male counterpart. Majority of them, 32.8% had primary education followed by secondary 27.5% and illiterates were few 25.5%. Which is in accord to a study done by Mayur V, in Rajkot where majority 45.6% had their formal education till primary. Most of them were Muslim by religion 51.7%, followed by Hindu 48%. Taking socio-economic status into consideration, majority of them belong to lower middle class, 58.3% followed by upper middle and upper lower, 17.3% each. Similarly, a study done in Puducherry by A V Boratne also quoted 71% were in the class 1 to 3, this can be due to lot of construction work around the Old Hubli employing most of the household members of the family leading to increased income.

The awareness regarding malaria (24.5%), dengue (15%) and Japanese encephalitis (2.5%) were considerably low as compared to chikungunya (60%). This can be due to the fact that, the area under the study had a recent outbreak of chikungunya fever resulting in increased awareness regarding it. Over half of people (50.2%), do not know the mode of transmission of these diseases. They were unaware of the breeding places (96%) and resting habitat (42.5%), contrary to a study by Mayur V in Rajkot, where 90% of the people knew water collection as the most common breeding place. The most common symptoms and the modality of diagnosis was known to very few of the respondents' i.e 23% and 13% respectively. While, only 8% of the participant were unaware of control measures for mosquito control. Which is not in accord with Mayur V study in Rajkot, where symptoms were known to 90.05% of respondents. This is because of lack of health education and less community participation in this regards.

ORIGINAL ARTICLE

Television (21.5%) and friends/relatives (23.5%) were the most common source of information regarding mosquito borne diseases, while health workers (19.5%) were third most common. Which is not similar to study in Puducherry by A V Borante, where most common source was television, 71%. It is disappointing to see health professional in the lower most source of information.

Nearly 53.3% of participants had a nuclear family and 67.3% stayed in semi-pucca house. The source of water was chiefly by pipeline 99%, let once a week. Over 77.8% had well closed drains. Which is in accord to a study by A V Bortane in Puducherry, where in 74.3% were nuclear families but only 33.3% stayed in semi-pucca house. 99% had continuous access to safe water and 59.5% had underground drains.

Many residents prefer private consultation (80%) for their illness than the government set up, showing the aptitude of general population towards government services. 84.8% stored non-drinking water in barrels, kept covered (97.3%) and cleaned once a week (94.3%), reflecting the adequate water storage knowledge, which in turn lessens the mosquito breeding places. The use of mosquito nets, liquid vaporizers and coils/mats were seen in 18%, 46.5% and 53.5% respectively. 96.3% of them used these personal protective measures only during night hours. Similarly a study by Anand T in Delhi, also reported 60% used liquid vaporizers and 72.2% of them at night.

The community measures undertaken in their area to prevent MBD's is very minimal and most frequently used one in insecticide fogging. The lack of other methods like larvicides and chemical agents can be attributed to less resources and difficulty in reaching the place.

CONCLUSION: A significant number of people were still unaware of the mosquito borne diseases. The health professionals were less common source of information regarding the same and natural outbreak is the best teacher with regards to the knowledge of a disease. The knowledge regarding control measures of mosquitoes were surprisingly found adequate and correct.

LIMITATION: A comparison between the knowledge among rural and urban population could have been done. Involvement of health professionals to give health education during the study should have been done.

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ORIGINAL ARTICLE

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Sl. no	Variable		Frequency	Percentage (%)
1.	Sex	Male	113	28.2
		Female	287	71.8
2.	Literacy status	Graduate	24	6.0
		Higher secondary	33	8.3
		Secondary	110	27.5
		Primary	131	32.8
		illiterate	102	25.5
3.	Religion	Hindu	192	48.0
		Muslim	207	51.7
		Christian	0	0
		Others	1	0.3
4.	Socio-economic status	Upper middle	69	17.3
		Lower middle	233	58.3
		Upper lower	71	17.8
		Lower	27	6.8

Table 1: Distribution according to socio-demographic details

ORIGINAL ARTICLE

Sl. no	Conditions		Frequency	Percentage (%)
1.	Type of family	Joint	134	33.5
		Nuclear	213	53.3
		Extended	53	13.2
2.	Type of house	Kaccha	31	7.8
		Pucca	100	25
		Semi-pucca	269	67.3
3.	Source of water	Closed well	2	0.5
		Open well	1	0.3
		Pipeline	396	99
		Pond	1	0.3
4.	Frequency of water supply	Daily	4	1
		Alternate days	2	0.5
		Once a week	393	98.3
		Twice a week	1	0.2
5.	Type of drainage	Closed	311	77.8
		Open	87	21.8
		No drain	2	0.4
6.	Consultation for disease	Govt hospital	79	19.7
		Private hospital	320	80
		Don't know	1	0.3

Table 2: Showing distribution according to living conditions of people under study

Sl. no	Knowledge		Number	Percentage	Z test	
1.	Heard about malaria	Yes	98	24.5%	Z=11.44 P<0.0001	Highly significant
		No	302	75.5%		
	Heard about dengue	Yes	60	15%	Z=8.41 P<0.0001	Highly significant
		No	340	85%		
	Heard about chikungunya	Yes	240	60%	Z=24.49 P<0.0001	Highly significant
		No	160	40%		
	Heard about JE	Yes	10	2.5%	Z=3.20 P<0.01	Significant
		No	390	97.5%		
2.	Mode of transmission	Know	201	50.2%	Z=20.10 P<0.0001	Highly significant
		Don't know	199	49.8%		
3.	Breeding places	Know	16	4%	Z=4.08 P<0.01	Significant
		Don't know	384	96%		
4.	Resting habitats	Know	230	57.5%	Z=23.26 P<0.0001	Highly significant
		Don't know	170	42.5%		

ORIGINAL ARTICLE

5.	Symptoms of MBD's	Know	92	23%	Z=10.93 P<0.0001	Highly significant
		Don't know	308	77%		
6.	Confirmation of malaria	Know	52	13%	Z=7.74 P<0.0001	Highly significant
		Don't know	348	87%		
7.	Are you at risk of getting MBD's?	Yes	264	66%	Z=27.96 P<0.0001	Highly significant
		No	136	34%		

Table 3: Distribution according to various knowledge aspects of Mosquito borne diseases

Sl. no.	Practices		Frequency	Percentage
1.	Non-drinking water storage	Cement tanks	53	13.3
		Barrels	339	84.8
		Overhead tanks	8	2.1
2.	Frequency of cleaning water containers	Every day	1	0.3
		Once a week	377	94.3
		Twice a week	12	3.0
		Once a month	10	2.5
3.	Covering the stored water	Yes	389	97.3
		No	11	2.7
4.	Waste disposal	Dustbin closed properly	40	10
		Dustbin not closed	213	53.3
		Directly into pit	70	17.5
		Collect into plastic bags	77	19.3
5.	Use of mosquito nets	Yes	72	18
		No	328	82
6.	Use of liquid vaporizers	Yes	186	46.5
		No	214	53.5
7.	Use of coils/mats	Yes	214	53.5
		No	186	46.5
8.	Smoke of leaves/ cow dung	Yes	27	6.8
		No	373	93.3

Table 4: Showing distribution according to practices employed to prevent Mosquito borne diseases.

ORIGINAL ARTICLE

Chart 1: Showing the frequency of using the various personal protective measures in the community

Chart 2: Showing the various community measures undertaken in that area to prevent MBD's

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